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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,488	12/05/2003	Kazuya Kuriyama	09495/100L025-US2	3124
7278	7590	03/10/2005	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			EDMONDSON, LYNNE RENEE	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/729,488

Applicant(s)

KURIYAMA ET AL.

Examiner

Lynne Edmondson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 6, 13 and 14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 4 of U.S. Patent No. 6732909. Although the conflicting claims are not identical, they are not patentably distinct from each other because both teach a method of forming a Ti backing plate by interposing a Cu or Zr insert between the components and heating to a temperature sufficient to permit diffusion of the Cu. Both also teach the article formed by the process. However the instant process teaches heating within a range of about 887 C to 1670 C where the '909 process teaches a range of 990 C to 1670 C. The instant article teaches how the product is made where the '909 article does not.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the majority of both ranges overlap and that both final products are

identical with identical structures, compounds and components irrespective of the manufacturing process.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

((e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohhashi et al. (USPN 5693203).

Ohhashi teaches a method of bonding two Ti components (figure 6) to form a backing plate (figure 1) comprising interposing a metallic foil insert comprising Cu (col 5 lines 1-4), heating the assembly to a temperature at which the foil is liquefied and maintaining the temperature (col 5 line 63 – col 6 line 62) under vacuum col 4 lines 35-60). It is noted that the backing plate of the instant claims may be made by other methods such as friction stir welding and still have the same structure with similar properties.

Art Unit: 1725

4. Claims 1, 2, 4-9, 11, 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Vollmer et al. (USPN 6149051).

Vollmer teaches a method of bonding two Ti components (col 1 lines 9-12) comprising interposing a metallic foil comprising Cu and Zr, heating the assembly to a temperature at which the foil is liquefied (col 3 lines 11-30 and lines 54-59) and maintaining the temperature to permit sufficient diffusion of the Cu and Zr (col 4 lines 20-67). The welding temperature may be the eutectic temperature or that of intermetallic formation (col 8 lines 35-52 and col 10 lines 1-19). Heating is performed in a vacuum or inert atmosphere (col 7 lines 44-53). The material may be used in foil or powder form (col 5 lines 30-52). The assembly is heated to a temperature of 900 C and held there for at least 600 seconds (10 minutes) however these conditions are material dependent (col 7 lines 5-43). The thickness of the foil is 0.002 inches or 51 microns (col 1 lines 58-65). Powder can be any size with the preferred size about 325 mesh (about 43 microns, col 6 lines 14-27). See also Vollmer claims 1 and 4-12.

5. Claims 1, 2, 4-6, 8, 9, 11, 12, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimizu (USPN 5831252).

Shimizu teaches a method of bonding two Ti components (col 3 lines 32-40) comprising interposing a metallic insert (11) comprising Cu and Zr (col 2 lines 45-55 and col 4 lines 65-67), heating the assembly to a temperature at which the foil is liquefied (col 2 lines 15-32) and maintaining the temperature in a vacuum or inert atmosphere to permit sufficient diffusion of the Cu and Zr (col 2 lines 56-65 and col 6 lines 35-48). The

assembly is heated to a temperature of about 900 C (col 5 lines 1-30). The insert has a thickness between 1 and 50 microns (col 2 lines 49-51) and an example is taught having a thickness of 20 microns (col 5 lines 14-16). See also Shimizu claims 1-20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vollmer et al. (USPN 6149051).

Vollmer teaches a method of bonding two Ti components (col 1 lines 9-12) comprising interposing a metallic foil comprising Cu and Zr, heating the assembly to a temperature at which the foil is liquefied (col 3 lines 11-30 and lines 54-59) and maintaining the temperature to permit sufficient diffusion of the Cu and Zr (col 4 lines 20-67). The welding temperature may be the eutectic temperature or that of intermetallic formation (col 8 lines 35-52 and col 10 lines 1-19). Heating is performed in a vacuum or inert atmosphere (col 7 lines 44-53). The material may be used in foil or powder form (col 5 lines 30-52). Powder can be any size with the preferred size about 325 mesh (about 43 microns, col 6 lines 14-27). The assembly is heated to a

Art Unit: 1725

temperature of 900 C and held there for at least 600 seconds (10 minutes) however these conditions are material dependent (col 7 lines 5-43). However, there is no disclosure of 30 micron powder.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the powder can be any size and that optimization of the powder size would enhance the brazing process. In a broad powder size distribution a portion of particles of about 43 microns and particles of about 30 microns would be likely to coexist.

7. Claims 10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vollmer et al. (USPN 6149051) in view of Demaray et al. (USPN 6149051).

Vollmer teaches a method of bonding two Ti components (col 1 lines 9-12) comprising interposing a metallic foil comprising Cu and Zr, heating the assembly to a temperature at which the foil is liquefied (col 3 lines 11-30 and lines 54-59) and maintaining the temperature to permit sufficient diffusion of the Cu and Zr (col 4 lines 20-67). The welding temperature may be the eutectic temperature or that of intermetallic formation (col 8 lines 35-52 and col 10 lines 1-19). Heating is performed in a vacuum or inert atmosphere (col 7 lines 44-53). The material may be used in foil or powder form (col 5 lines 30-52). Powder can be any size with the preferred size about 325 mesh (about 43 microns, col 6 lines 14-27). The assembly is heated to a temperature of 900 C and held there for at least 600 seconds (10 minutes) however

Art Unit: 1725

these conditions are material dependent (col 7 lines 5-43). However, there is no disclosure of using such a method to form a backing plate.

Demaray teaches a method of bonding two Ti components forming a backing plate for a sputtering process (col 7 lines 29-43) comprising interposing a metallic filler powder, heating the assembly to a temperature at which the powder is liquefied and maintaining the temperature to permit sufficient diffusion (col 4 lines 13-29). The assembly is heated to a high temperature in a vacuum or inert atmosphere and held there (col 15 lines 1-55). It is noted that the backing plate of the instant claims may be made by other methods such as friction stir welding and still have the same structure with similar properties.

It would have been obvious to one of ordinary skill in the art at the time of the invention to form a Ti backing plate in the conventional manner of diffusion bonding the parts with a filler material and thereby fabricate a complex assembly in an easy and economical manner (Vollmer, col 3 lines 41-52 and col 10 lines 20-30) while maintaining good elevated temperature properties and oxidation resistance (Vollmer, col 1 lines 12-17 and lines 35-40).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuriyama et al. (USPN 6789723 B2).

Art Unit: 1725

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson
Primary Examiner
Art Unit 1725

LRE

LYNNE R. EDMONDSON
PRIMARY EXAMINER

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3/3/05